

## REMARKS

The Office Action mailed May 3, 2002, has been carefully considered together with each of the references cited therein.

Claims 1-19 are presented for examination.

5 Claims 1-11 were rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (CA 2064270) in view of Andersson et al (#5,155,799).

The examiner stated that Davis substantially shows the claimed method and apparatus including flattening a neck portion, gathering the flattened portion and attaching a reusable closure 25 to the neck, belt means 15, brush means 13 and perforating means as claimed. Figure 2 shows 10 the sealing means 17 and gripping means 15 to grip the end while sealing. The examiner noted, however, that Davis does not show the heating means as claimed. Davis shows heating means 17 to seal the web but does not show the hot air means as claimed.

The examiner further stated that Andersson et al teaches the concept of sealing webs using heated air means and that hot air has advantages with regard to rapid and concentrated heating (Col 15 2, lines 8+). The heated air is disclosed as having a temperature range between 300 and 500 degrees Celsius. The examiner indicated that Davis also discloses that the hot air is distributed to two nozzles 7. However, Davis '270, at page 6, lines 10-14, states:

20 "As best indicated in Step 2 of Figure 1, the bag where loaded comprises a filled bag portion 7 and above that there is an unfilled bag portion 9. The unfilled bag portion terminates in the mouth 5, which is initially open and then sealed by the end of the bag handling line."

Since the term "nozzle" was not found in Davis '270, the examiner appears to have been referring to Andersson '799," which, at Col. 3, lines 8-63, states:

25 "The preferred embodiment of the heating apparatus illustrated in FIGS. 1 and 2, is of compact design and is enclosed in a casing 1 which is of substantially rectangular configuration. The apparatus also includes a lid 2 and a bottom portion 3. Both the lid 2 and the bottom portion 3 consists of walls with an inner insulation 4. The bottom wall of the bottom portion 3 displays a centrally disposed longitudinal channel 5 for the packaging material and has corresponding recesses in the end walls. Via the channel 5, the packaging material (not shown) reaches up into a treatment chamber 6 which is laterally defined by two 30 identical mutually facing nozzles 7 and a suction box 8 disposed above the

nozzles. These parts together define the treatment chamber 6 so that it is only open downwardly. Both of the nozzles 7 have mutually facing rows of outflow ports 9, by which hot air may flow out and realize a substantially linear heating of packaging material (not shown) located in the treatment chamber 6.

5 The upper defining wall of the treatment chamber 6 formed by the suction box 8 includes a number of apertures 10 in the form of holes of varying diameter. To ensure a uniform air flow, the hole located furthest to the right in FIG. 1 is of the largest diameter, while the size of the holes progressively diminishes in a direction to the left, i.e. in the direction of flow of the air (see arrows).

10 At its left-hand end, the suction box 8 connects to a recirculation duct 11 which, via a return bend, leads to air current generating means in the form of an ejector 12. The opposite end of the ejector 12 is connected to a heating device 13 which includes a cassette 14 with a number of electric resistor elements 15 of a per se known type. At the opposite end of the cassette 14 in relation to the ejector 12, there is disposed an air duct 16 which, via a return bend, leads the air to the two nozzles 7 located in parallel.

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20 "At the end of the one nozzle 7 (seen in the direction of flow), there is disposed a thermocouple 17 which is electrically connected to a conventional control unit (not shown) which regulates the current supply to the resistor elements 15. The ejector 12 is connected, via a pipe 18, to a compressed air source (not shown) from which compressed air for driving the ejector may be obtained. The compressed air source should be of such capacity that the ejector can be fed with compressed air at a pressure of between 0.6 and 0.8 bar at a flow rate of 50-100 liters/min. In such an instance, the ejector (which is of conventional type) gives an air flow rate of 200-300 liters/min.

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30 "When the apparatus according to the present invention is made operational, the pipe 18 of the ejector 12 is placed in communication with the compressed air source, and the ejector sucks air via the apertures 10 of the suction box 8 so that an air flow into the cassette 14 of the heating device 13 is created. The resistor elements 15 are connected to a power source which makes it possible to heat up the passing air to a temperature of between 300.degree. and 500.degree. C. The thus heated air is fed, via the bent air duct 16, to a branch pipe which distributes the air to the two parallel nozzles 7."

35 The examiner then concluded that it would have been obvious to one of ordinary skill in the art at the time of the invention to provide Davis with hot air means as taught by Andersson et al to provide the advantages with rapid and concentrating heating means. The examiner stated that regarding the location of parts, such as, the location of air dispensers, little patentable weight is given to the location of parts unless there is some criticality or unexpected result from the location.

Regarding the temperature as claimed, the examiner stated that Andersson et al shows a temperature range as discussed supra. Optimum ranges via experimentation are known and little patentable weight is given unless the particular range imparts new and unexpected result, which are different in kind, and not merely degree.

5                   Applicants respectfully take issue with the position of the examiner. The references, when considered separately or in combination, do not suggest the proposed combination.

Davis ' 270, at page 6, line 15 through page 8, line 12, states:

10                   “The bag is placed as shown in the left hand side of Figure 1 with its sealed bottom on a conveyor 11. The open mouth is located at the top of the bag. The bag is carried by the conveyor to a pair of rotating brushes 13, where the unfilled bag portion is fed between the brushes, which rotate to expel air from the upper part of the bag and which push up the unfilled bag portion. This provides in effect a preshaping of the bag at the juncture between the unfilled bag portion and the filled bag portion, as indicated at 10 in Figure 2. There is stress on the bag at this preshaped region but the unfilled bag position, 15 specifically the mouth of the bag, is slack or unstressed above the preshaped region.

20                   “The bag passes immediately from the brushes to a further bag handling station including a pair of rotating belts 15 which grip the unfilled bag portion beneath the open mouth after it has been preshaped by the brushes. Both the brushing and the gripping of the bag by belts 15 causes the unfilled bag portion to flatten, with the bag mouth 5 in an essentially unstressed condition. The belts hold the unfilled bag portion so that it stands upright where the bag mouth 5 is fed through a pair of heat sealers 17, producing a seal 19 along the mouth of the bag. This seal is applied as the bag continuously moves through the gripping and sealing station without slowing the bag handling operation whatsoever. As earlier stated, the reason that the bag is able to continuously move and at the same time be effectively sealed is that the bag mouth is not under any pressure to separate while the seal is applied so that the seal does 25 not have to be held while it sets.

30                   “In the particular arrangement shown the Figures 2 and 2B the heat sealers comprise rotating heat seal wheels, one of which is provided with unheated serrating teeth 18. These teeth prescore the bag as indicated at 20 immediately beneath the heat seal 19.

35                   “In addition, heat seal wheels 17 are divided into an upper heated wheel portion 17c and a lower unheated wheel portion 17d. The upper heat wheel

portion performs the heat sealing operation. The lower unheated wheel portion includes an embossed bag coder which applies a bag code 22 beneath the serration as also seen in Figure 2C.

5 "The preweakening of the bag by the serrations allows easy removal of the seal by the consumer. However any tampering at the bag top prior to purchases is still evident.

10 "The bag code, which is pressed into the bag rather than including anything in the way of printing inks etc, indicates things such as where the product originated, date of the product etc. The code stays with the bag even after the seal has been removed. In the case of products such as bagged milk this is important because the manufacturer can easily determine whether product returns are justified. If the retailer attempts to switch the product from one bag to another the seal again indicates "retailer tampering."

15 "After the bag mouth is sealed it is then passed onto a reusable closure applying station 21. This station presents a closure member 25, which could be wire, tape, etc. or as shown a KWIK LOK™, which is a small plastic clip into which the bag is fed by a pair of rollers 23, which are part of the closure application station. After the closure has been applied, the bag includes both a sealed mouth and a reusable bag closure as shown to the far right hand side of Figure 1. This is the way the bag appears in the retail outlet. Note that the KWIK LOK and not the seal is tightly against the product prevents its shifting in the bag."

20 Claims 1-3 call for positioning a segment of the flattened portion to bridge between spaced grippers; and

heating the segment spanning between the grippers to a temperature sufficient for bonding material forming the neck of the bag such that the product in the bag is not accessible.

Applicant respectfully urges that the rejection of Claim 1, under 35 U.S.C. 103(a) as being unpatentable over Davis (CA 2064270) in view of Andersson et al (#5,155,799) be reconsidered and withdrawn.

Claim 2 further calls for perforating the bag before applying heat for sealing a segment of the bag, said perforations being located between the sealed segment and the product in the bag for forming a strip of perforations. As described at Page 13, of Applicant's original disclosure, this assures that the bag is perforated while it is cool and before it is heated to the point at which it might tend to stretch and deform when teeth 221 on the perforator wheel 220 engage the neck of the bag.

Applicant respectfully urges that the rejection of Claim 2, under 35 U.S.C. 103(a) as being unpatentable over Davis (CA 2064270) in view of Andersson et al (#5,155,799) be reconsidered and withdrawn.

Referring to Claim 3, the step of securing at least a segment of the flattened portion of the neck of the bag comprising moving the neck of the bag such that streams of heated air impinge on the surface of the bag for fusing panels on the bag together to form a sealed strip is not suggested by the references.

Referring to Claim 4, which has been rewritten in independent form to include the limitations of Claim 1, the step of gripping portions of the bag adjacent opposite sides of the segment of the bag against which the stream of air impinges is not suggested by the references.

Claim 4 has been amended to call for a method of forming a tamper resistant seal on a plastic bag, having ink on the neck of the bag that may be softened by heat, wherein heat is applied without physically contacting surfaces on the neck of the bag with heated sealing elements, for sealing at least a segment of the flattened portion such that the product in the bag is not accessible.

Bakery products are generally packaged in printed bags. The process disclosed in the patent to Davis is inoperable for use on bags having printing ink on the neck of the bag. The ink would be offset and accumulate on the heat seal wheels 17 of Davis.

As noted above, Davis specifically states: "The bag code, which is pressed into the bag rather than including anything in the way of printing inks etc, indicates things such as where the product originated, date of the product etc."

Further, it should be obvious that the melted plastic would stick to the wheel 17, particularly since pins 18 are positioned immediately adjacent the upper heated wheel portion 17c. The upper heat wheel portion 17c performs the heat sealing operation. The lower unheated wheel portion includes an embossed bag coder which applies a bag code 22 beneath the serration as also seen in Figure 2C. The disclosure of Davis, at Page 7, lines 11-15, explains that: "In the particular arrangement shown the Figures 2 and 2B the heat sealers comprise rotating heat seal wheels, one of which is provided with unheated serrating teeth 18. These teeth prescore the bag as indicated at 20 immediately beneath the heat seal 19." Thus, Davis uses a single set of wheels 17 to prescore, melt and emboss the plastic simultaneously. Not only would ink be offset to wheels 17, pins 18 would

tend to cause the softened plastic to adhere to the wheel 17.

At page 3, lines 10 - 16, Applicant's original disclosure states:

"The bag neck is flattened adjacent the gathering belts and the flattened bag neck moves adjacent a roller which has projections for forming a row of perforations in the neck of the bag. The bag moves between a pair of manifolds through which heated air flows to impinge against upper and lower surfaces of the bag neck for sealing the bag. The manifolds do not contact the surface of the bag such that the bag neck can be sealed even though printing ink on the surface of the bag may not have dried or cured or if the heat softens the ink."

At page 7, line 29, through page 8, line 7, the original disclosure states:

"It should be appreciated that the projection of jets of heated air to impinge against the surface of the bag allows panels of the bag to be fused without physically contacting surfaces of the bag with heated sealing elements. Thus, even though the neck of the bag may carry wet ink which has not cured, or ink softened by the heat, seal strip 130 can be formed thereon. Wet or softened ink will not offset onto manifolds 165 and 175 because the manifolds do not physically engage surfaces of the neck of the bag.

"Air manifolds 165 and 175 preferably have for example twenty orifices about 0.040 inches arranged to form outlet openings which project air streams to impinge against panels 125x and 125y above and below the neck 125 of each bag for heating panels 125x and 125y to a temperature sufficient for fusing panels 125x and 125y together to form the seal strip 130.

At page 13, line 20, through page 14, line 4, the original disclosure states:

"Referring to Figure 16 of the drawing, a three-stage blower 230 delivers a high volume of pressurized air to electric heaters 260 and 270. Heaters 260 and 270 are preferably configured to circulate the air over heating elements for heating the air to a controlled temperature and delivering the air through diverter valves 262 and 272, respectively, to upper manifold 265 and lower manifold 275. Each manifold 265 and 275 has an elongated slot through which heated air is delivered to impinge against the flattened surface of the neck of the bag bridging space between outboard belts 241 and 251 and inboard belts 243 and 253. It should be appreciated that the perforator wheel 220 has already formed row 132 of perforations in the neck of the bag before the neck of the bag moves between upper and lower manifolds 265 and 275. This assures that the bag is perforated while it is cool and before it is heated to the point at which it might tend to stretch and deform when teeth 221 on the perforator wheel 220 engage the neck of the bag. The heated air, flowing at a high velocity, impinges against upper

and lower surfaces of the neck of the bag for welding the upper and lower surfaces together. It should be appreciated that air impinges against the portion of the bag bridged between the belts such that the molten plastic or any ink which may be softened by the hot air is not offset onto the belts or any other mechanism before the neck of the bag is cooled."

Applicant respectfully urges that the rejection of Claims 3 and 4, under 35 U.S.C. 103(a) as being unpatentable over Davis (CA 2064270) in view of Andersson et al (#5,155,799) be reconsidered and withdrawn.

In Claim 5, the steps of gripping the bag at spaced positions adjacent a row of perforations; and directing temperature controlled air to impinge against the bag between the gripped positions for forming a sealed strip adjacent the row of perforations are not suggested by the references.

5 Applicant respectfully urges that the rejection of Claim 5, under 35 U.S.C. 103(a) as being unpatentable over Davis (CA 2064270) in view of Andersson et al (#5,155,799) be reconsidered and withdrawn.

10 Apparatus called for in Claims 6-10 for forming a tamper resistant closure on a plastic bag containing a product is not suggested by the references. The apparatus includes means for gripping spaced portions of the bag; means for forming a row of perforations in the bag adjacent the gripped portions of the bag; and means for delivering temperature controlled gas to impinge against the surfaces of the bag between the gripped portions for fusing portions of the bag between the gripped portions for forming a sealed strip, said perforations being positioned to permit removal of the sealed strip.

15 The apparatus called for in Claim 11 for forming a tamper resistant closure on a plastic bag containing a product is not suggested by the references.

20 Claim 11 calls for a pair of upper brushes and a pair of lower brushes, a first of said pair of upper and lower brushes having bristles arranged to engage the flattened neck of the bag and draw the bag transversely across a conveyor; second upper and lower brushes having angularly inclined bristles for moving the leading edge of the bag neck longitudinally of the conveyor while the trailing edge of the bag neck is engaged by the first upper and lower brushes; and a pair of upper belts and a pair of lower belts, said upper and lower belts being horizontally spaced apart such that one of said upper belts and one of said lower belts engage opposite sides of a portion of the neck of the bag and

one of said upper belts and one of said lower belts engage a second portion of said bag neck such that a portion of the bag neck bridges space between the upper pair of belts and the lower pair of belts. Further, the references do not contain any teaching which would make it obvious to deliver heated air to impinge against upper and lower surfaces of the portion of the bag neck bridging between the belts for melting and forming a sealed strip across the entire width of the bag neck for forming a seal.

5                   Applicant respectfully urges that the rejection of Claim 11, under 35 U.S.C. 103(a) as being unpatentable over Davis (CA 2064270) in view of Andersson et al (#5,155,799) be reconsidered and withdrawn.

10                  Applicant respectfully urges that the rejection of Claims 1-11, under 35 U.S.C. 103(a) as being unpatentable over Davis (CA 2064270) in view of Andersson et al (#5,155,799) be reconsidered and withdrawn.

15                  Claims 12-13, and 15-19 were rejected under 35 U.S.C. 102(b) as being anticipated by Davis (CA 2064270). The examiner stated that Davis shows a product tampering sealed bags that enclose bakery products (p. 3 lines 5+), with a reclosable bag with a row of perforations forming a tamper evident tear of strip. Davis discloses that the reclosable closure member may be wire, tape, plastic clip etc... (p. 8 lines 3+).

Claims 12 - 19 have been amended to call for a wrapper, having ink that may be softened by heat on the wrapper, as disclosed at pages 3, 7, 13 and 14 of the specification of Applicants' original disclosure.

Applicant respectfully urges that the rejection of Claims 12-13, and 15-19 under 35 U.S.C. 102(b) as being anticipated by Davis (CA 2064270) be reconsidered and withdrawn.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davis. As discussed supra, Davis discloses that the closure element may be wire, tape, a plastic clip, etc. but does not disclose a twisted ribbon. The examiner notes that it is well known in the art to use ribbons as closure elements.

Applicant respectfully urges that the rejection of Claim 14 under 35 U.S.C. 103(a) as being unpatentable over Davis be reconsidered and withdrawn.

All claims are believed to be in condition for allowance and such action is respectfully requested. If the Examiner is of the opinion that a telephone conference would speed prosecution of the application, please call the undersigned.

The application as now presented appears to be in condition for allowance and such action is respectfully solicited.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed for Commissioner of Patents and Trademarks, Washington, D. C. 20231

on Nov. 4, 2002

Date of Deposit

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Respectfully submitted,

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